

SEQUENCE LISTING

<110> Cox III, George N
Bolder Biotechnology, Inc.

<120> Derivatives of Growth Hormone and Related Proteins, and Methods of Use
Thereof

<130> 4152-1-PUS-8

<150> 60/418,106
<151> 2002-10-11

<150> 60/418,105
<151> 2002-10-11

<150> 10/400,377
<151> 2003-03-26

<150> 09/462,941
<151> 2000-01-14

<150> PCT/US98/14497
<151> 1998-07-13

<150> 60/052,516
<151> 1997-07-14

<150> 10/298,148
<151> 2002-11-15

<150> 60/418,040
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<150> 60/332,285
<151> 2001-11-15

<150> 09/889,273
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<150> PCT/US00/00931
<151> 2000-01-14

<150> 60/116,041
<151> 1999-01-14

<150> 10/276,358
<151> 2002-11-14

<150> PCT/US01/16088
<151> 2001-05-16

<150> 60/204,617
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<160> 41

<170> PatentIn Ver. 2.0

<210> 1

<211> 191

<212> PRT

<213> Homo sapiens

<400> 1

Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn Ala Met Leu Arg
1 5 10 15
Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr Gln Glu Phe Glu
20 25 30
Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro
35 40 45
Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg
50 55 60
Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu
65 70 75 80
Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe Leu Arg Ser Val
85 90 95
Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser Asn Val Tyr Asp
100 105 110
Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu Met Gly Arg Leu
115 120 125
Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser
130 135 140
Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr
145 150 155 160
Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe
165 170 175
Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe
180 185 190

<210> 2

<211> 166

<212> PRT

<213> Homo sapiens

<400> 2

Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu
 1 5 10 15
 Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His
 20 25 30
 Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe
 35 40 45
 Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val Glu Val Trp
 50 55 60
 Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu
 65 70 75 80
 Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp
 85 90 95
 Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu
 100 105 110
 Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala
 115 120 125
 Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val
 130 135 140
 Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala
 145 150 155 160
 Cys Arg Thr Gly Asp Arg
 165

<210> 3
 <211> 165
 <212> PRT
 <213> Homo sapiens

<400> 3

Cys Asp Leu Pro Gln Thr His Ser Leu Gly Ser Arg Arg Thr Leu Met
 1 5 10 15
 Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser Cys Leu Lys Asp
 20 25 30
 Arg His Asp Phe Gly Phe Pro Gln Glu Glu Phe Gly Asn Gln Phe Gln
 35 40 45
 Lys Ala Glu Thr Ile Pro Val Leu His Glu Met Ile Gln Gln Ile Phe
 50 55 60
 Asn Leu Phe Ser Thr Lys Asp Ser Ser Ala Ala Trp Asp Glu Thr Leu
 65 70 75 80
 Leu Asp Lys Phe Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu

<210> 5
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<400> 5

Met	Ser	Tyr	Asn	Leu	Leu	Gly	Phe	Leu	Gln	Arg	Ser	Ser	Asn	Phe	Gln
1				5					10					15	
Cys	Gln	Lys	Leu	Leu	Trp	Gln	Leu	Asn	Gly	Arg	Leu	Glu	Tyr	Cys	Leu
			20					25					30		
Lys	Asp	Arg	Met	Asn	Phe	Asp	Ile	Pro	Glu	Glu	Ile	Lys	Gln	Leu	Gln
		35					40					45			
Gln	Phe	Gln	Lys	Glu	Asp	Ala	Ala	Leu	Thr	Ile	Tyr	Glu	Met	Leu	Gln
	50					55					60				
Asn	Ile	Phe	Ala	Ile	Phe	Arg	Gln	Asp	Ser	Ser	Ser	Thr	Gly	Trp	Asn
65					70					75					80
Glu	Thr	Ile	Val	Glu	Asn	Leu	Leu	Ala	Asn	Val	Tyr	His	Gln	Ile	Asn
				85					90					95	
His	Leu	Lys	Thr	Val	Leu	Glu	Glu	Lys	Leu	Glu	Lys	Glu	Asp	Phe	Thr
			100					105					110		
Arg	Gly	Lys	Leu	Met	Ser	Ser	Leu	His	Leu	Lys	Arg	Tyr	Tyr	Gly	Arg
		115					120					125			
Ile	Leu	His	Tyr	Leu	Lys	Ala	Lys	Glu	Tyr	Ser	His	Cys	Ala	Trp	Thr
	130					135					140				
Ile	Val	Arg	Val	Glu	Ile	Leu	Arg	Asn	Phe	Tyr	Phe	Ile	Asn	Arg	Leu
145					150					155					160
Thr	Gly	Tyr	Leu	Arg	Asn										
				165											

<210> 6
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 <212> PRT
 <213> Homo sapiens

<400> 6

Thr	Pro	Leu	Gly	Pro	Ala	Ser	Ser	Leu	Pro	Gln	Ser	Phe	Leu	Leu	Lys
1				5					10					15	
Cys	Leu	Glu	Gln	Val	Arg	Lys	Ile	Gln	Gly	Asp	Gly	Ala	Ala	Leu	Gln
			20					25					30		

Glu Lys Leu Cys Ala Thr Tyr Lys Leu Cys His Pro Glu Glu Leu Val
 35 40 45
 Leu Leu Gly His Ser Leu Gly Ile Pro Trp Ala Pro Leu Ser Ser Cys
 50 55 60
 Pro Ser Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser
 65 70 75 80
 Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile Ser
 85 90 95
 Pro Glu Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp
 100 105 110
 Phe Ala Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro
 115 120 125
 Ala Leu Gln Pro Thr Gln Gly Ala Met Pro Ala Phe Ala Ser Ala Phe
 130 135 140
 Gln Arg Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Gln Ser Phe
 145 150 155 160
 Leu Glu Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro
 165 170

<210> 7
 <211> 332
 <212> PRT
 <213> Homo sapiens

<400> 7
 Ser Pro Ala Pro Pro Ala Cys Asp Leu Arg Val Leu Ser Lys Leu Leu
 1 5 10 15
 Arg Asp Ser His Val Leu His Ser Arg Leu Ser Gln Cys Pro Glu Val
 20 25 30
 His Pro Leu Pro Thr Pro Val Leu Leu Pro Ala Val Asp Phe Ser Leu
 35 40 45
 Gly Glu Trp Lys Thr Gln Met Glu Glu Thr Lys Ala Gln Asp Ile Leu
 50 55 60
 Gly Ala Val Thr Leu Leu Leu Glu Gly Val Met Ala Ala Arg Gly Gln
 65 70 75 80
 Leu Gly Pro Thr Cys Leu Ser Ser Leu Leu Gly Gln Leu Ser Gly Gln
 85 90 95
 Val Arg Leu Leu Leu Gly Ala Leu Gln Ser Leu Leu Gly Thr Gln Leu
 100 105 110

Pro Pro Gln Gly Arg Thr Thr Ala His Lys Asp Pro Asn Ala Ile Phe
 115 120 125
 Leu Ser Phe Gln His Leu Leu Arg Gly Lys Val Arg Phe Leu Met Leu
 130 135 140
 Val Gly Gly Ser Thr Leu Cys Val Arg Arg Ala Pro Pro Thr Thr Ala
 145 150 155 160
 Val Pro Ser Arg Thr Ser Leu Val Leu Thr Leu Asn Glu Leu Pro Asn
 165 170 175
 Arg Thr Ser Gly Leu Leu Glu Thr Asn Phe Thr Ala Ser Ala Arg Thr
 180 185 190
 Thr Gly Ser Gly Leu Leu Lys Trp Gln Gln Gly Phe Arg Ala Lys Ile
 195 200 205
 Pro Gly Leu Leu Asn Gln Thr Ser Arg Ser Leu Asp Gln Ile Pro Gly
 210 215 220
 Tyr Leu Asn Arg Ile His Glu Leu Leu Asn Gly Thr Arg Gly Leu Phe
 225 230 235 240
 Pro Gly Pro Ser Arg Arg Thr Leu Gly Ala Pro Asp Ile Ser Ser Gly
 245 250 255
 Thr Ser Asp Thr Gly Ser Leu Pro Pro Asn Leu Gln Pro Gly Tyr Ser
 260 265 270
 Pro Ser Pro Thr His Pro Pro Thr Gly Gly Tyr Thr Leu Phe Pro Leu
 275 280 285
 Pro Pro Thr Leu Pro Thr Pro Val Val Gln Leu His Pro Leu Leu Pro
 290 295 300
 Asp Pro Ser Ala Pro Thr Pro Thr Pro Thr Ser Pro Leu Leu Asn Thr
 305 310 315 320
 Ser Tyr Thr His Ser Gln Asn Leu Ser Gln Glu Gly
 325 330

<210> 8
 <211> 127
 <212> PRT
 <213> Homo sapiens

<400> 8

Ala Pro Ala Arg Ser Pro Ser Pro Ser Thr Gln Pro Trp Glu His Val
 1 5 10 15
 Asn Ala Ile Gln Glu Ala Arg Arg Leu Leu Asn Leu Ser Arg Asp Thr
 20 25 30
 Ala Ala Glu Met Asn Glu Thr Val Glu Val Ile Ser Glu Met Phe Asp

35	40	45
Leu Gln Glu Pro Thr Cys	Leu Gln Thr Arg Leu Glu	Leu Tyr Lys Gln
50	55	60
Gly Leu Arg Gly Ser Leu Thr Lys Leu Lys Gly Pro Leu Thr Met Met		
65	70	75
Ala Ser His Tyr Lys Gln His Cys Pro Pro Thr Pro Glu Thr Ser Cys		
85	90	95
Ala Thr Gln Ile Ile Thr Phe Glu Ser Phe Lys Glu Asn Leu Lys Asp		
100	105	110
Phe Leu Leu Val Ile Pro Phe Asp Cys Trp Glu Pro Val Gln Glu		
115	120	125

<210> 9
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<400> 9

Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His
1 5 10 15
Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30
Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45
Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60
Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu
65 70 75 80
Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95
Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110
Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
115 120 125
Ile Ser Thr Leu Thr
130

<210> 10
 <211> 152
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<213> Homo sapiens

<400> 10

Met Ser Arg Leu Pro Val Leu Leu Leu Leu Gln Leu Leu Val Arg Pro
1 5 10 15
Gly Leu Gln Ala Pro Met Thr Gln Thr Thr Pro Leu Lys Thr Ser Trp
20 25 30
Val Asn Cys Ser Asn Met Ile Asp Glu Ile Ile Thr His Leu Lys Gln
35 40 45
Pro Pro Leu Pro Leu Leu Asp Phe Asn Asn Leu Asn Gly Glu Asp Gln
50 55 60
Asp Ile Leu Met Glu Asn Asn Leu Arg Arg Pro Asn Leu Glu Ala Phe
65 70 75 80
Asn Arg Ala Val Lys Ser Leu Gln Asn Ala Ser Ala Ile Glu Ser Ile
85 90 95
Leu Lys Asn Leu Leu Pro Cys Leu Pro Leu Ala Thr Ala Ala Pro Thr
100 105 110
Arg His Pro Ile His Ile Lys Asp Gly Asp Trp Asn Glu Phe Arg Arg
115 120 125
Lys Leu Thr Phe Tyr Leu Lys Thr Leu Glu Asn Ala Gln Ala Gln Gln
130 135 140
Thr Thr Leu Ser Leu Ala Ile Phe
145 150

<210> 11

<211> 129

<212> PRT

<213> Homo sapiens

<400> 11

His Lys Cys Asp Ile Thr Leu Gln Glu Ile Ile Lys Thr Leu Asn Ser
1 5 10 15
Leu Thr Glu Gln Lys Thr Leu Cys Thr Glu Leu Thr Val Thr Asp Ile
20 25 30
Phe Ala Ala Ser Lys Asn Thr Thr Glu Lys Glu Thr Phe Cys Arg Ala
35 40 45
Ala Thr Val Leu Arg Gln Phe Tyr Ser His His Glu Lys Asp Thr Arg
50 55 60

Cys Leu Gly Ala Thr Ala Gln Gln Phe His Arg His Lys Gln Leu Ile
 65 70 75 80
 Arg Phe Leu Lys Arg Leu Asp Arg Asn Leu Trp Gly Leu Ala Gly Leu
 85 90 95
 Asn Ser Cys Pro Val Lys Glu Ala Asn Gln Ser Thr Leu Glu Asn Phe
 100 105 110
 Leu Glu Arg Leu Lys Thr Ile Met Arg Glu Lys Tyr Ser Lys Cys Ser
 115 120 125
 Ser

<210> 12

<211> 134

<212> PRT

<213> Homo sapiens

<400> 12

Met Arg Met Leu Leu His Leu Ser Leu Leu Ala Leu Gly Ala Ala Tyr
 1 5 10 15
 Val Tyr Ala Ile Pro Thr Glu Ile Pro Thr Ser Ala Leu Val Lys Glu
 20 25 30
 Thr Leu Ala Leu Leu Ser Thr His Arg Thr Leu Leu Ile Ala Asn Glu
 35 40 45
 Thr Leu Arg Ile Pro Val Pro Val His Lys Asn His Gln Leu Cys Thr
 50 55 60
 Glu Glu Ile Phe Gln Gly Ile Gly Thr Leu Glu Ser Gln Thr Val Gln
 65 70 75 80
 Gly Gly Thr Val Glu Arg Leu Phe Lys Asn Leu Ser Leu Ile Lys Lys
 85 90 95
 Tyr Ile Asp Gly Gln Lys Lys Lys Cys Gly Glu Glu Arg Arg Arg Val
 100 105 110
 Asn Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val Met Asn Thr
 115 120 125
 Glu Trp Ile Ile Glu Ser
 130

<210> 13

<211> 212

<212> PRT

<213> Homo sapiens

<400> 13

Met Asn Ser Phe Ser Thr Ser Ala Phe Gly Pro Val Ala Phe Ser Leu
1 5 10 15
Gly Leu Leu Leu Val Leu Pro Ala Ala Phe Pro Ala Pro Val Pro Pro
20 25 30
Gly Glu Asp Ser Lys Asp Val Ala Ala Pro His Arg Gln Pro Leu Thr
35 40 45
Ser Ser Glu Arg Ile Asp Lys Gln Ile Arg Tyr Ile Leu Asp Gly Ile
50 55 60
Ser Ala Leu Arg Lys Glu Thr Cys Asn Lys Ser Asn Met Cys Glu Ser
65 70 75 80
Ser Lys Glu Ala Leu Ala Glu Asn Asn Leu Asn Leu Pro Lys Met Ala
85 90 95
Glu Lys Asp Gly Cys Phe Gln Ser Gly Phe Asn Glu Glu Thr Cys Leu
100 105 110
Val Lys Ile Ile Thr Gly Leu Leu Glu Phe Glu Val Tyr Leu Glu Tyr
115 120 125
Leu Gln Asn Arg Phe Glu Ser Ser Glu Glu Gln Ala Arg Ala Val Gln
130 135 140
Met Ser Thr Lys Val Leu Ile Gln Phe Leu Gln Lys Lys Ala Lys Asn
145 150 155 160
Leu Asp Ala Ile Thr Thr Pro Asp Pro Thr Thr Asn Ala Ser Leu Leu
165 170 175
Thr Lys Leu Gln Ala Gln Asn Gln Trp Leu Gln Asp Met Thr Thr His
180 185 190
Leu Ile Leu Arg Ser Phe Lys Glu Phe Leu Gln Ser Ser Leu Arg Ala
195 200 205
Leu Arg Gln Met
210

<210> 14

<211> 177

<212> PRT

<213> Homo sapiens

<400> 14

Met Phe His Val Ser Phe Arg Tyr Ile Phe Gly Leu Pro Pro Leu Ile

1	5	10	15
Leu Val Leu Leu Pro Val Ala Ser Ser Asp Cys Asp Ile Glu Gly Lys	20	25	30
Asp Gly Lys Gln Tyr Glu Ser Val Leu Met Val Ser Ile Asp Gln Leu	35	40	45
Leu Asp Ser Met Lys Glu Ile Gly Ser Asn Cys Leu Asn Asn Glu Phe	50	55	60
Asn Phe Phe Lys Arg His Ile Cys Asp Ala Asn Lys Glu Gly Met Phe	65	70	75
Leu Phe Arg Ala Ala Arg Lys Leu Arg Gln Phe Leu Lys Met Asn Ser	85	90	95
Thr Gly Asp Phe Asp Leu His Leu Leu Lys Val Ser Glu Gly Thr Thr	100	105	110
Ile Leu Leu Asn Cys Thr Gly Gln Val Lys Gly Arg Lys Pro Ala Ala	115	120	125
Leu Gly Glu Ala Gln Pro Thr Lys Ser Leu Glu Glu Asn Lys Ser Leu	130	135	140
Lys Glu Gln Lys Lys Leu Asn Asp Leu Cys Phe Leu Lys Arg Leu Leu	145	150	155
Gln Glu Ile Lys Thr Cys Trp Asn Lys Ile Leu Met Gly Thr Lys Glu	165	170	175

His

<210> 15
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 <213> Homo sapiens

<400> 15

Met Leu Leu Ala Met Val Leu Thr Ser Ala Leu Leu Leu Cys Ser Val	1	5	10	15
Ala Gly Gln Gly Cys Pro Thr Leu Ala Gly Ile Leu Asp Ile Asn Phe	20	25	30	
Leu Ile Asn Lys Met Gln Glu Asp Pro Ala Ser Lys Cys His Cys Ser	35	40	45	
Ala Asn Val Thr Ser Cys Leu Cys Leu Gly Ile Pro Ser Asp Asn Cys	50	55	60	
Thr Arg Pro Cys Phe Ser Glu Arg Leu Ser Gln Met Thr Asn Thr Thr	65	70	75	80

Met Gln Thr Arg Tyr Pro Leu Ile Phe Ser Arg Val Lys Lys Ser Val
85 90 95
Glu Val Leu Lys Asn Asn Lys Cys Pro Tyr Phe Ser Cys Glu Gln Pro
100 105 110
Cys Asn Gln Thr Thr Ala Gly Asn Ala Leu Thr Phe Leu Lys Ser Leu
115 120 125
Leu Glu Ile Phe Gln Lys Glu Lys Met Arg Gly Met Arg Gly Lys Ile
130 135 140

<210> 16
<211> 178
<212> PRT
<213> Homo sapiens

<400> 16

Met His Ser Ser Ala Leu Leu Cys Cys Leu Val Leu Leu Thr Gly Val
1 5 10 15
Arg Ala Ser Pro Gly Gln Gly Thr Gln Ser Glu Asn Ser Cys Thr His
20 25 30
Phe Pro Gly Asn Leu Pro Asn Met Leu Arg Asp Leu Arg Asp Ala Phe
35 40 45
Ser Arg Val Lys Thr Phe Phe Gln Met Lys Asp Gln Leu Asp Asn Leu
50 55 60
Leu Leu Lys Glu Ser Leu Leu Glu Asp Phe Lys Gly Tyr Leu Gly Cys
65 70 75 80
Gln Ala Leu Ser Glu Met Ile Gln Phe Tyr Leu Glu Glu Val Met Pro
85 90 95
Gln Ala Glu Asn Gln Asp Pro Asp Ile Lys Ala His Val Asn Ser Leu
100 105 110
Gly Glu Asn Leu Lys Thr Leu Arg Leu Arg Leu Arg Arg Cys His Arg
115 120 125
Phe Leu Pro Cys Glu Asn Lys Ser Lys Ala Val Glu Gln Val Lys Asn
130 135 140
Ala Phe Asn Lys Leu Gln Glu Lys Gly Ile Tyr Lys Ala Met Ser Glu
145 150 155 160
Phe Asp Ile Phe Ile Asn Tyr Ile Glu Ala Tyr Met Thr Met Lys Ile
165 170 175
Arg Asn

<210> 17
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 <212> PRT
 <213> Homo sapiens

<400> 17

Met	Asn	Cys	Val	Cys	Arg	Leu	Val	Leu	Val	Val	Leu	Ser	Leu	Trp	Pro
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Asp	Thr	Ala	Val	Ala	Pro	Gly	Pro	Pro	Pro	Gly	Pro	Pro	Arg	Val	Ser
			20					25					30		
Pro	Asp	Pro	Arg	Ala	Glu	Leu	Asp	Ser	Thr	Val	Leu	Leu	Thr	Arg	Ser
		35					40					45			
Leu	Leu	Ala	Asp	Thr	Arg	Gln	Leu	Ala	Ala	Gln	Leu	Arg	Asp	Lys	Phe
	50					55					60				
Pro	Ala	Asp	Gly	Asp	His	Asn	Leu	Asp	Ser	Leu	Pro	Thr	Leu	Ala	Met
65					70					75					80
Ser	Ala	Gly	Ala	Leu	Gly	Ala	Leu	Gln	Leu	Pro	Gly	Val	Leu	Thr	Arg
				85					90					95	
Leu	Arg	Ala	Asp	Leu	Leu	Ser	Tyr	Leu	Arg	His	Val	Gln	Trp	Leu	Arg
		100						105					110		
Arg	Ala	Gly	Gly	Ser	Ser	Leu	Lys	Thr	Leu	Glu	Pro	Glu	Leu	Gly	Thr
		115					120					125			
Leu	Gln	Ala	Arg	Leu	Asp	Arg	Leu	Leu	Arg	Arg	Leu	Gln	Leu	Leu	Met
	130					135					140				
Ser	Arg	Leu	Ala	Leu	Pro	Gln	Pro	Pro	Pro	Asp	Pro	Pro	Ala	Pro	Pro
145					150					155					160
Leu	Ala	Pro	Pro	Ser	Ser	Ala	Trp	Gly	Gly	Ile	Arg	Ala	Ala	His	Ala
				165					170					175	
Ile	Leu	Gly	Gly	Leu	His	Leu	Thr	Leu	Asp	Trp	Ala	Val	Arg	Gly	Leu
		180						185					190		
Leu	Leu	Leu	Lys	Thr	Arg	Leu									
		195													

<210> 18
 <211> 219
 <212> PRT
 <213> Homo sapiens

<400> 18

Met Cys Pro Ala Arg Ser Leu Leu Leu Val Ala Thr Leu Val Leu Leu
1 5 10 15
Asp His Leu Ser Leu Ala Arg Asn Leu Pro Val Ala Thr Pro Asp Pro
20 25 30
Gly Met Phe Pro Cys Leu His His Ser Gln Asn Leu Leu Arg Ala Val
35 40 45
Ser Asn Met Leu Gln Lys Ala Arg Gln Thr Leu Glu Phe Tyr Pro Cys
50 55 60
Thr Ser Glu Glu Ile Asp His Glu Asp Ile Thr Lys Asp Lys Thr Ser
65 70 75 80
Thr Val Glu Ala Cys Leu Pro Leu Glu Leu Thr Lys Asn Glu Ser Cys
85 90 95
Leu Asn Ser Arg Glu Thr Ser Phe Ile Thr Asn Gly Ser Cys Leu Ala
100 105 110
Ser Arg Lys Thr Ser Phe Met Met Ala Leu Cys Leu Ser Ser Ile Tyr
115 120 125
Glu Asp Leu Lys Met Tyr Gln Val Glu Phe Lys Thr Met Asn Ala Lys
130 135 140
Leu Leu Met Asp Pro Lys Arg Gln Ile Phe Leu Asp Gln Asn Met Leu
145 150 155 160
Ala Val Ile Asp Glu Leu Met Gln Ala Leu Asn Phe Asn Ser Glu Thr
165 170 175
Val Pro Gln Lys Ser Ser Leu Glu Glu Pro Asp Phe Tyr Lys Thr Lys
180 185 190
Ile Lys Leu Cys Ile Leu Leu His Ala Phe Arg Ile Arg Ala Val Thr
195 200 205
Ile Asp Arg Val Thr Ser Tyr Leu Asn Ala Ser
210 215

<210> 19

<211> 132

<212> PRT

<213> Homo sapiens

<400> 19

Met Ala Leu Leu Leu Thr Thr Val Ile Ala Leu Thr Cys Leu Gly Gly
1 5 10 15
Phe Ala Ser Pro Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu Leu

20										25					30															
Ile	Glu	Glu	Leu	Val	Asn	Ile	Thr	Gln	Asn	Gln	Lys	Ala	Pro	Leu	Cys															
		35						40				45																		
Asn	Gly	Ser	Met	Val	Trp	Ser	Ile	Asn	Leu	Thr	Ala	Gly	Met	Tyr	Cys															
	50					55					60																			
Ala	Ala	Leu	Glu	Ser	Leu	Ile	Asn	Val	Ser	Gly	Cys	Ser	Ala	Ile	Glu															
65					70					75					80															
Lys	Thr	Gln	Arg	Met	Leu	Ser	Gly	Phe	Cys	Pro	His	Lys	Val	Ser	Ala															
				85					90					95																
Gly	Gln	Phe	Ser	Ser	Leu	His	Val	Arg	Asp	Thr	Lys	Ile	Glu	Val	Ala															
			100					105					110																	
Gln	Phe	Val	Lys	Asp	Leu	Leu	Leu	His	Leu	Lys	Lys	Leu	Phe	Arg	Glu															
	115						120					125																		
Gly	Arg	Phe	Asn																											
	130																													

<210> 20
 <211> 114
 <212> PRT
 <213> Homo sapiens

<400> 20

Asn	Trp	Val	Asn	Val	Ile	Ser	Asp	Leu	Lys	Lys	Ile	Glu	Asp	Leu	Ile															
1				5					10					15																
Gln	Ser	Met	His	Ile	Asp	Ala	Thr	Leu	Tyr	Thr	Glu	Ser	Asp	Val	His															
			20					25					30																	
Pro	Ser	Cys	Lys	Val	Thr	Ala	Met	Lys	Cys	Phe	Leu	Leu	Glu	Leu	Gln															
		35					40					45																		
Val	Ile	Ser	Leu	Glu	Ser	Gly	Asp	Ala	Ser	Ile	His	Asp	Thr	Val	Glu															
	50					55					60																			
Asn	Leu	Ile	Ile	Leu	Ala	Asn	Asn	Ser	Leu	Ser	Ser	Asn	Gly	Asn	Val															
65					70					75					80															
Thr	Glu	Ser	Gly	Cys	Lys	Glu	Cys	Glu	Glu	Leu	Glu	Glu	Lys	Asn	Ile															
			85					90					95																	
Lys	Glu	Phe	Leu	Gln	Ser	Phe	Val	His	Ile	Val	Gln	Met	Phe	Ile	Asn															
			100					105					110																	
Thr	Ser																													

<210> 21
 <211> 252
 <212> PRT
 <213> Homo sapiens

<400> 21

Met	Gly	Val	Leu	Leu	Thr	Gln	Arg	Thr	Leu	Leu	Ser	Leu	Val	Leu	Ala
1				5					10					15	
Leu	Leu	Phe	Pro	Ser	Met	Ala	Ser	Met	Ala	Ala	Ile	Gly	Ser	Cys	Ser
			20					25					30		
Lys	Glu	Tyr	Arg	Val	Leu	Leu	Gly	Gln	Leu	Gln	Lys	Gln	Thr	Asp	Leu
		35					40					45			
Met	Gln	Asp	Thr	Ser	Arg	Leu	Leu	Asp	Pro	Tyr	Ile	Arg	Ile	Gln	Gly
	50					55					60				
Leu	Asp	Val	Pro	Lys	Leu	Arg	Glu	His	Cys	Arg	Glu	Arg	Pro	Gly	Ala
65					70				75						80
Phe	Pro	Ser	Glu	Glu	Thr	Leu	Arg	Gly	Leu	Gly	Arg	Arg	Gly	Phe	Leu
				85					90					95	
Gln	Thr	Leu	Asn	Ala	Thr	Leu	Gly	Cys	Val	Leu	His	Arg	Leu	Ala	Asp
			100					105					110		
Leu	Glu	Gln	Arg	Leu	Pro	Lys	Ala	Gln	Asp	Leu	Glu	Arg	Ser	Gly	Leu
	115					120					125				
Asn	Ile	Glu	Asp	Leu	Glu	Lys	Leu	Gln	Met	Ala	Arg	Pro	Asn	Ile	Leu
	130					135					140				
Gly	Leu	Arg	Asn	Asn	Ile	Tyr	Cys	Met	Ala	Gln	Leu	Leu	Asp	Asn	Ser
145					150					155					160
Asp	Thr	Ala	Glu	Pro	Thr	Lys	Ala	Gly	Arg	Gly	Ala	Ser	Gln	Pro	Pro
				165					170					175	
Thr	Pro	Thr	Pro	Ala	Ser	Asp	Ala	Phe	Gln	Arg	Lys	Leu	Glu	Gly	Cys
			180					185					190		
Arg	Phe	Leu	His	Gly	Tyr	His	Arg	Phe	Met	His	Ser	Val	Gly	Arg	Val
		195					200					205			
Phe	Ser	Lys	Trp	Gly	Glu	Ser	Pro	Asn	Arg	Ser	Arg	Arg	His	Ser	Pro
	210					215					220				
His	Gln	Ala	Leu	Arg	Lys	Gly	Val	Arg	Arg	Thr	Arg	Pro	Ser	Arg	Lys
225					230					235					240
Gly	Lys	Arg	Leu	Met	Thr	Arg	Gly	Gln	Leu	Pro	Arg				
				245					250						

<210> 22
 <211> 200
 <212> PRT
 <213> Homo sapiens

<400> 22

Met	Ala	Phe	Thr	Glu	His	Ser	Pro	Leu	Thr	Pro	His	Arg	Arg	Asp	Leu
1				5					10					15	
Cys	Ser	Arg	Ser	Ile	Trp	Leu	Ala	Arg	Lys	Ile	Arg	Ser	Asp	Leu	Thr
			20					25					30		
Ala	Leu	Thr	Glu	Ser	Tyr	Val	Lys	His	Gln	Gly	Leu	Asn	Lys	Asn	Ile
			35				40					45			
Asn	Leu	Asp	Ser	Ala	Asp	Gly	Met	Pro	Val	Ala	Ser	Thr	Asp	Gln	Trp
	50					55					60				
Ser	Glu	Leu	Thr	Glu	Ala	Glu	Arg	Leu	Gln	Glu	Asn	Leu	Gln	Ala	Tyr
65					70				75						80
Arg	Thr	Phe	His	Val	Leu	Leu	Ala	Arg	Leu	Leu	Glu	Asp	Gln	Gln	Val
				85					90					95	
His	Phe	Thr	Pro	Thr	Glu	Gly	Asp	Phe	His	Gln	Ala	Ile	His	Thr	Leu
			100					105					110		
Leu	Leu	Gln	Val	Ala	Ala	Phe	Ala	Tyr	Gln	Ile	Glu	Glu	Leu	Met	Ile
		115					120					125			
Leu	Leu	Glu	Tyr	Lys	Ile	Pro	Arg	Asn	Glu	Ala	Asp	Gly	Met	Pro	Ile
	130					135					140				
Asn	Val	Gly	Asp	Gly	Gly	Leu	Phe	Glu	Lys	Lys	Leu	Trp	Gly	Leu	Lys
145					150					155					160
Val	Leu	Gln	Glu	Leu	Ser	Gln	Trp	Thr	Val	Arg	Ser	Ile	His	Asp	Leu
				165					170					175	
Arg	Phe	Ile	Ser	Ser	His	Gln	Thr	Gly	Ile	Pro	Ala	Arg	Gly	Ser	His
			180					185					190		
Tyr	Ile	Ala	Asn	Asn	Lys	Lys	Met								
		195					200								

<210> 23
 <211> 181
 <212> PRT
 <213> Homo sapiens

<400> 23

Ser Pro Leu Pro Ile Thr Pro Val Asn Ala Thr Cys Ala Ile Arg His

1	5	10	15
Pro Cys His Asn Asn Leu Met Asn Gln Ile Arg Ser Gln Leu Ala Gln	20	25	30
Leu Asn Gly Ser Ala Asn Ala Leu Phe Ile Leu Tyr Tyr Thr Ala Gln	35	40	45
Gly Glu Pro Phe Pro Asn Asn Leu Asp Lys Leu Cys Gly Pro Asn Val	50	55	60
Thr Asp Phe Pro Pro Phe His Ala Asn Gly Thr Glu Lys Ala Lys Leu	65	70	75
Val Glu Leu Tyr Arg Ile Val Val Tyr Leu Gly Thr Ser Leu Gly Asn	85	90	95
Ile Thr Arg Asp Gln Lys Ile Leu Asn Pro Ser Ala Leu Ser Leu His	100	105	110
Ser Lys Leu Asn Ala Thr Ala Asp Ile Leu Arg Gly Leu Leu Ser Asn	115	120	125
Val Leu Cys Arg Leu Cys Ser Lys Tyr His Val Gly His Val Asp Val	130	135	140
Thr Tyr Gly Pro Pro Asp Thr Ser Gly Lys Asp Val Phe Gln Lys Lys	145	150	155
Lys Leu Gly Cys Gln Leu Leu Gly Lys Tyr Lys Gln Ile Ile Ala Val	165	170	175
Leu Ala Gln Ala Phe	180		

<210> 24
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:PCR Primer

<400> 24
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<210> 25
 <211> 33
 <212> DNA
 <213> Artificial Sequence
 <220>

<223> Description of Artificial Sequence:PCR Primer

<400> 25

gggggatacct cactagaagc cacagctgcc ctc 33

<210> 26

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR Primer

<400> 26

ccccggatcc gccacatgg atctctggca gctgctgtt 39

<210> 27

<211> 40

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR Primer

<400> 27

ccccgtcgac tctagagcta ttaaatacgt agctcttggg 40

<210> 28

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR Primer

<400> 28

cgcggatccg attagaatcc acagctcccc tc 32

<210> 29

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR Primer

<400> 29

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ctatcg 66

<210> 30

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR Primer

<400> 30

gcattctatgt tcgttttctc tatcgctacc aacgcttacg cattcccaac cattccctta 60
tccag 65

<210> 31

<211> 62

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR Primer

<400> 31

gcagtggcac tggctggttt cgctaccgta ggcgaggcct tcccaaccat tcccttatcc 60
ag 62

<210> 32

<211> 59

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR Primer

<400> 32

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<210> 33

<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR Primer

<400> 33

ctgcttgaag atctgcccac accgggggct gccatc

36

<210> 34
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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<400> 34

gtagcgcagg ccttcccaac catt

24

<210> 35
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR Primer

<400> 35

ctgcttgaag atctgcccag tccgggggca gccatcttc

39

<210> 36
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR Primer

<400> 36

gggcagatct tcaagcagac ctacagcaag ttcgactgca actcacacaa c

51

<210> 37
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR Primer

 <400> 37
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 <210> 38
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR Primer

 <400> 38
 gggcagatct tcaagcagac ctactgcaag ttcgac 36

 <210> 39
 <211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR Primer

 <400> 39
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 <210> 40
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR Primer

 <400> 40
 gtagcgcagg ccttcccaac catt 24

<210> 41
<211> 40
<212> DNA
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<220>
<223> Description of Artificial Sequence:PCR Primer

<400> 41

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40